

FIG. 1

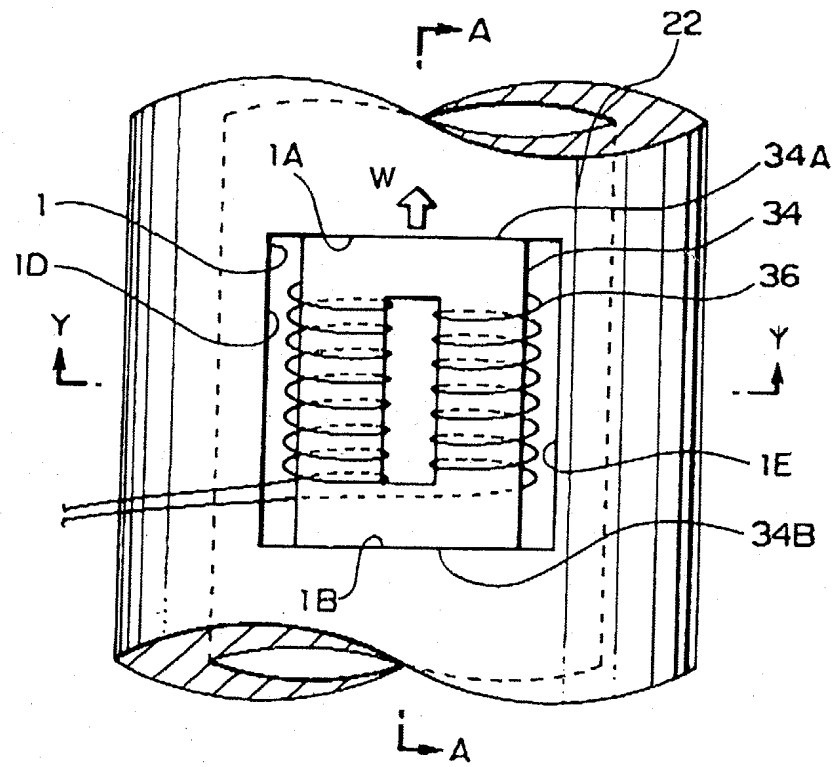


FIG. 2

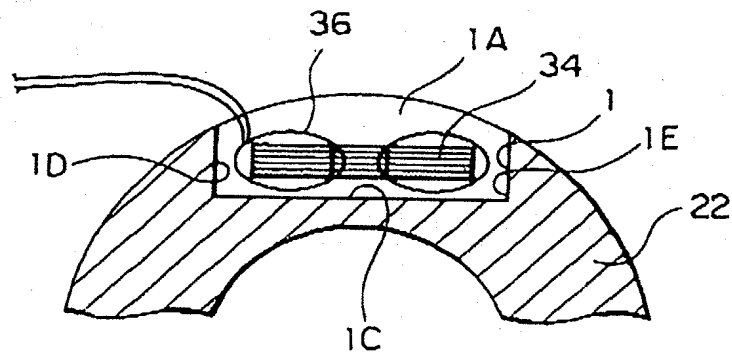
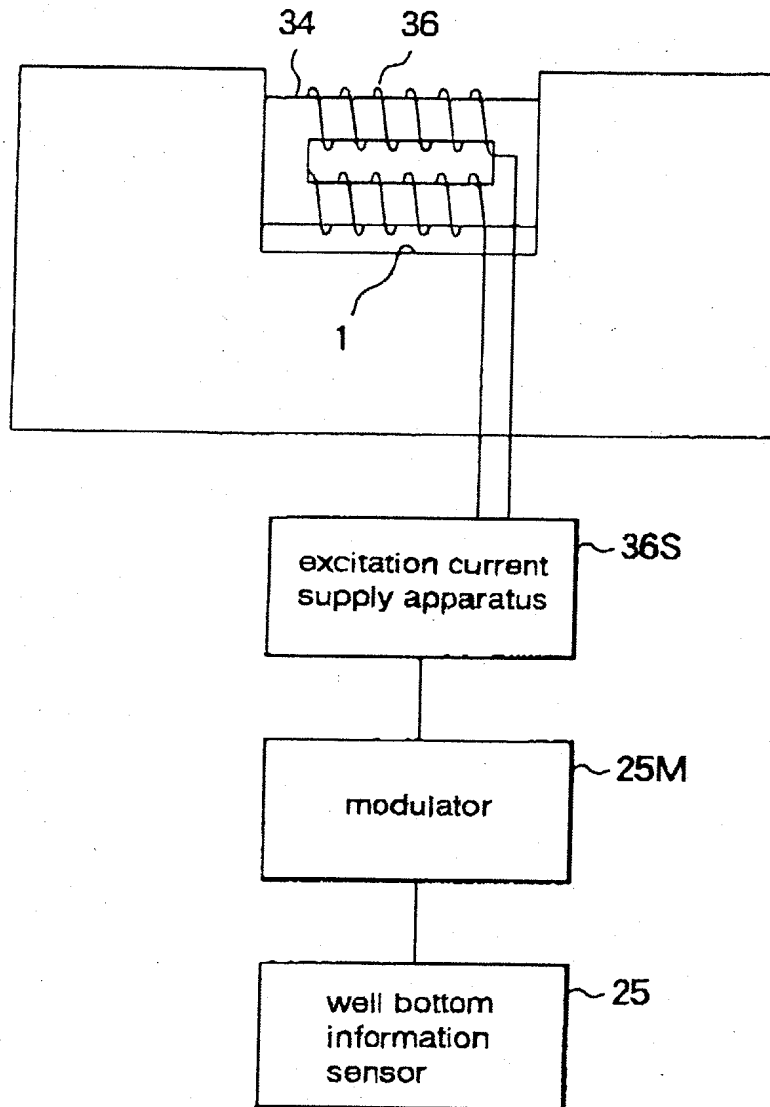
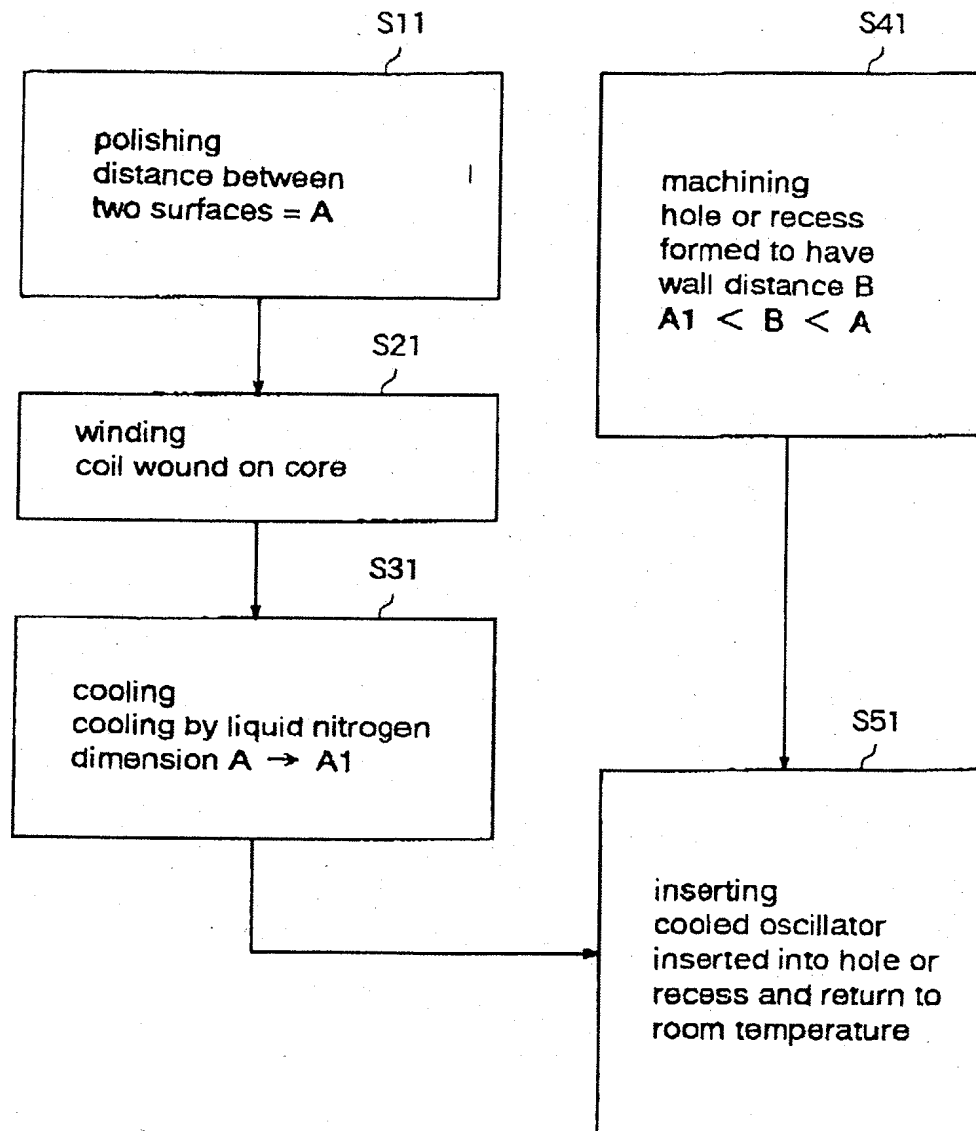


FIG. 3



09697678.102700

FIG. 4



09697678.102700

FIG. 5a

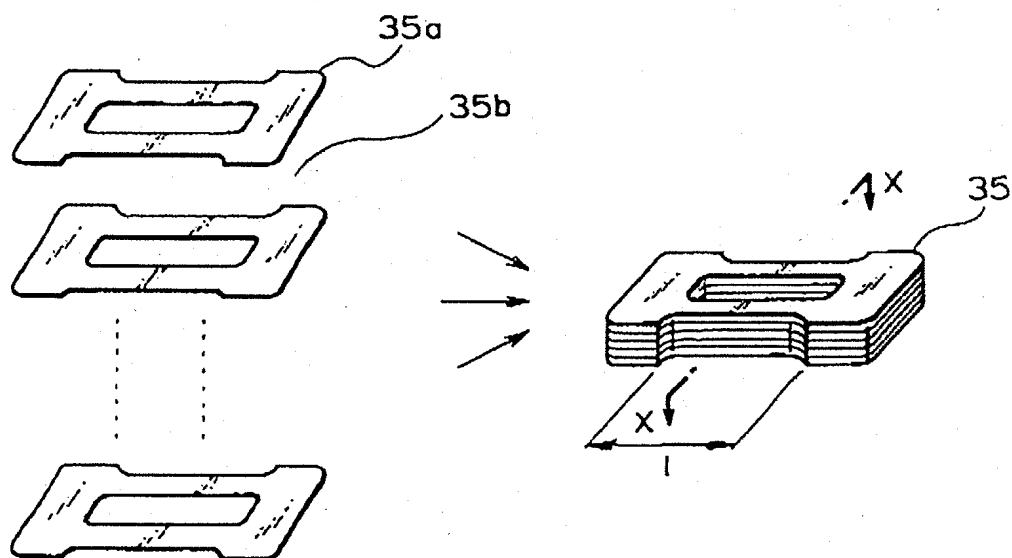
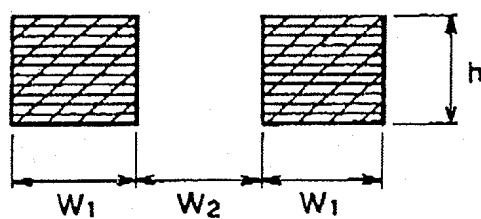


FIG. 5b



09697678-102700

FIG. 6

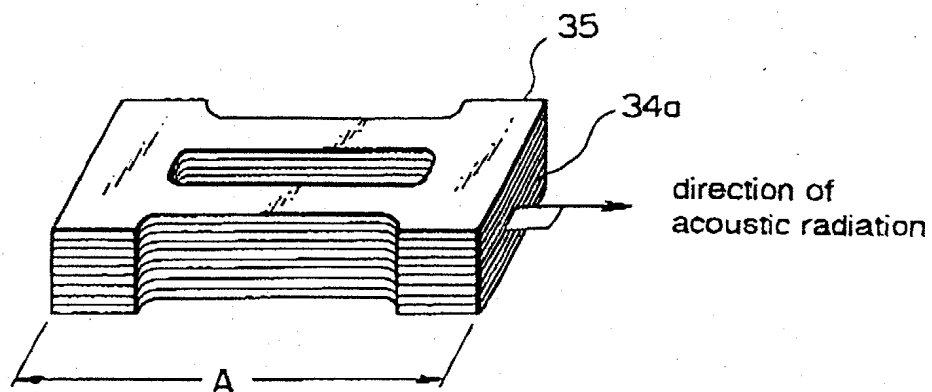


FIG. 7

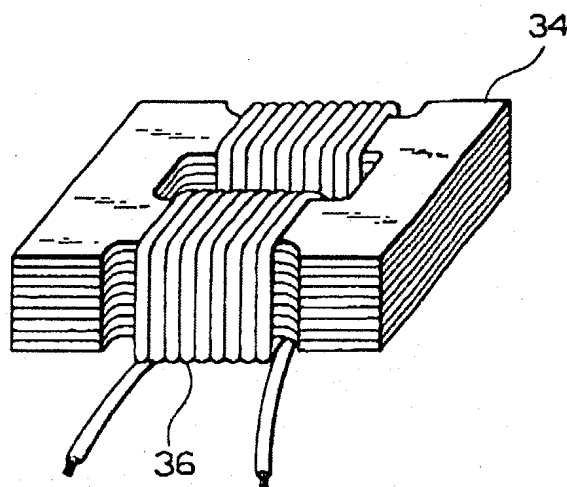


FIG. 8a

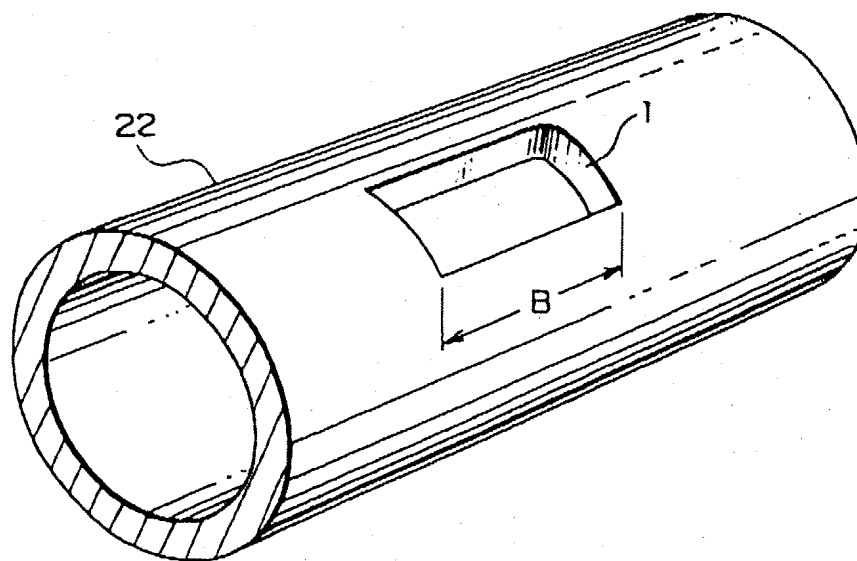


FIG. 8b

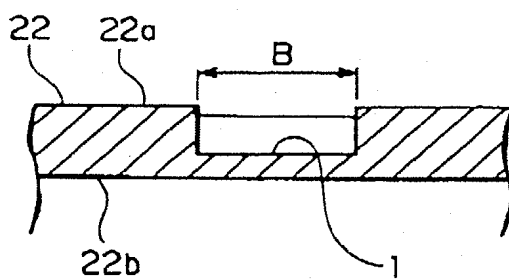


FIG. 8c

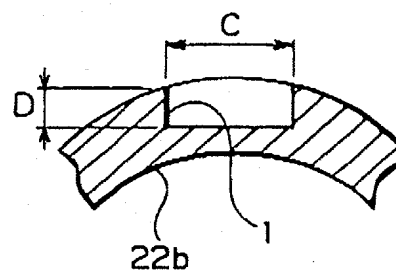


FIG. 9

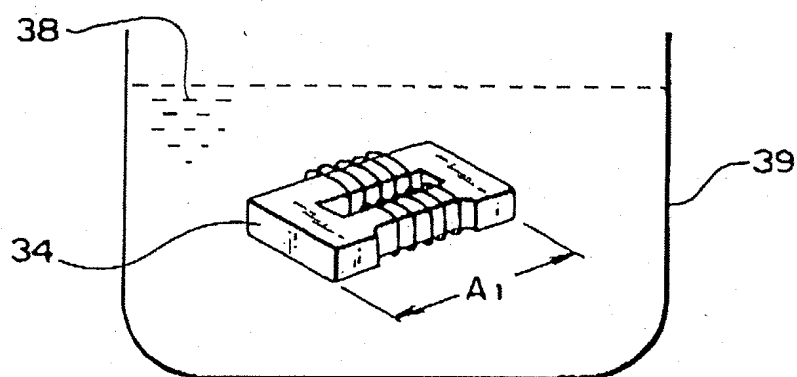


FIG. 10

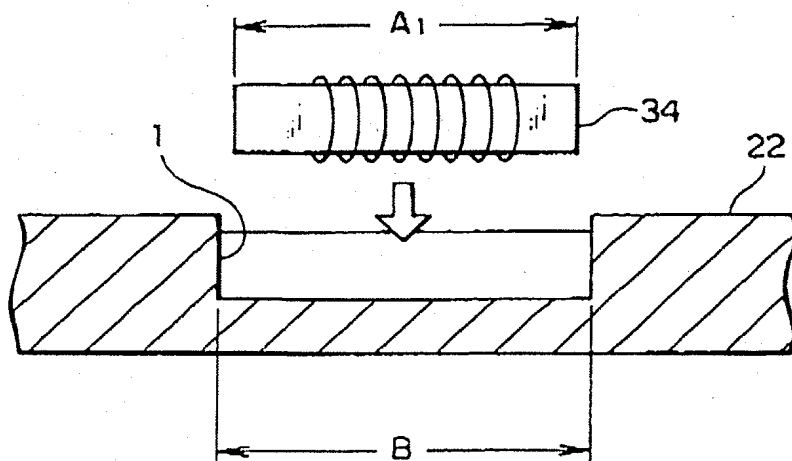
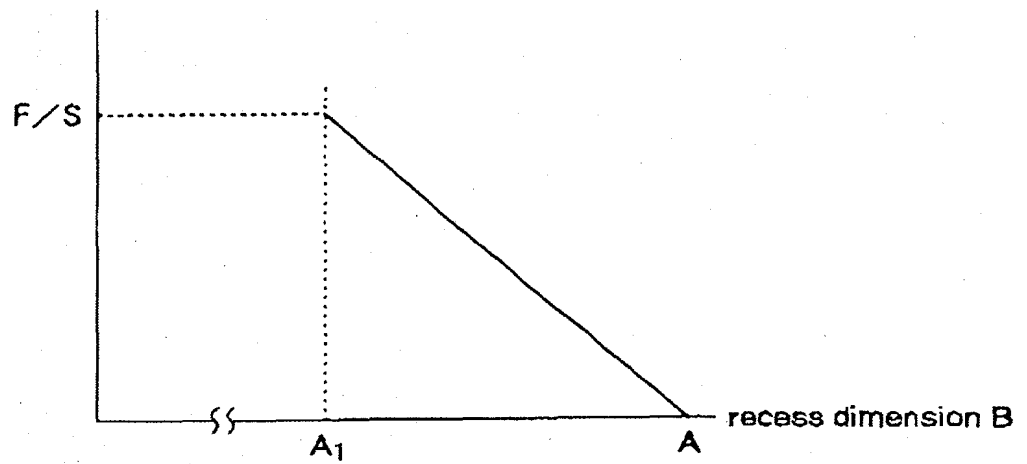


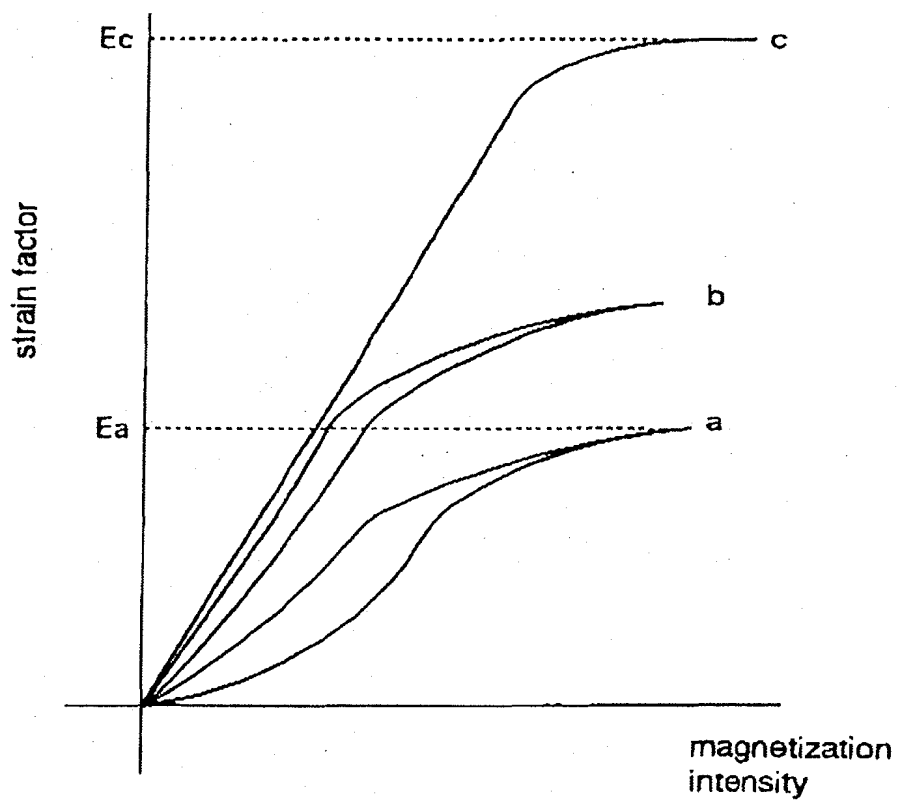
FIG. 11

pre-load force
per unit cross-sectional area



09697678-102700

FIG. 12



a: no pre-load

b: small pre-load

c: large pre-load

E_a : maximum magnetostriction factor with no pre-load

E_c : maximum magnetostriction factor with large pre-load

FIG. 13a

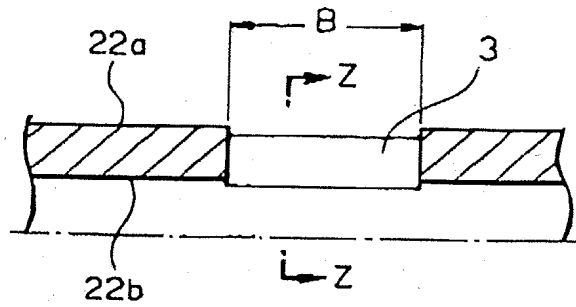


FIG. 13b

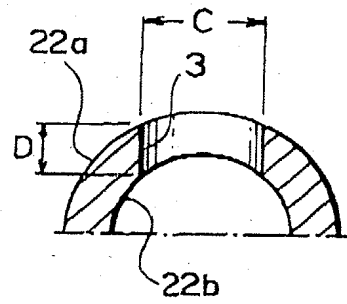


FIG. 14

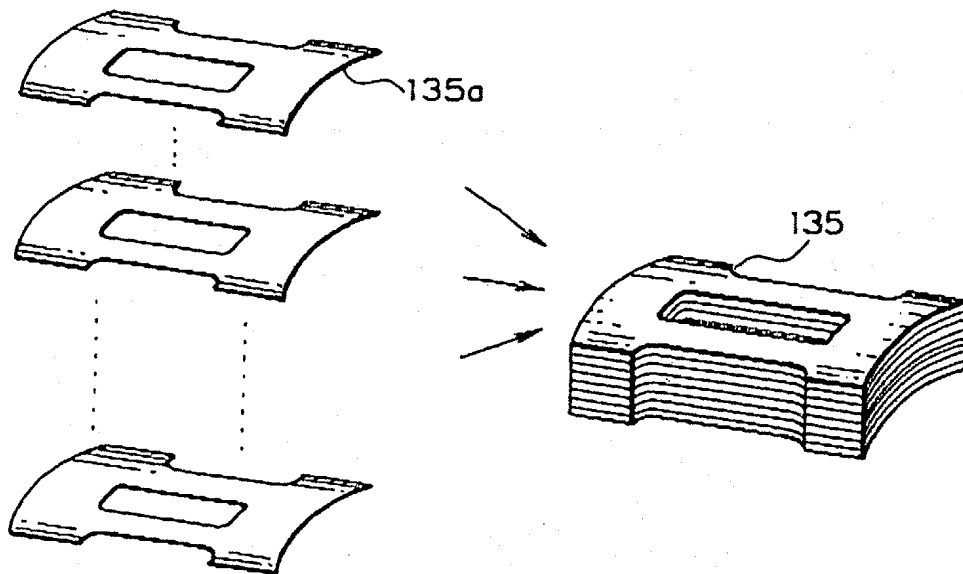


FIG. 15

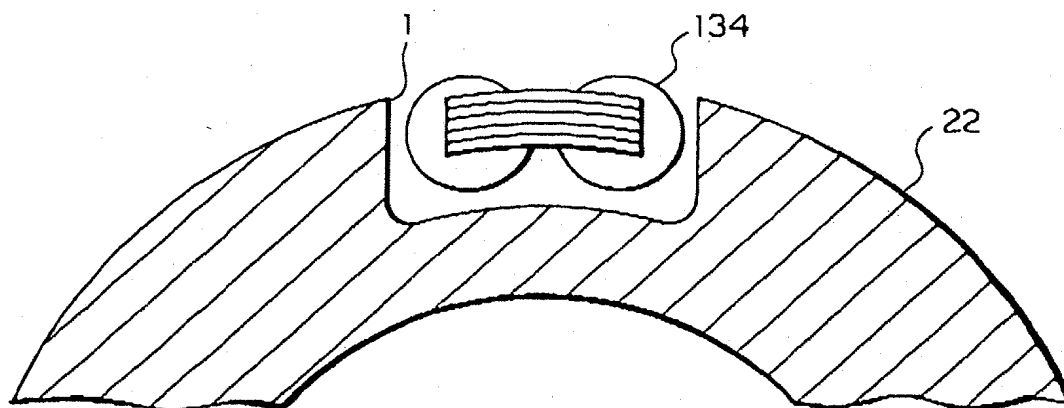
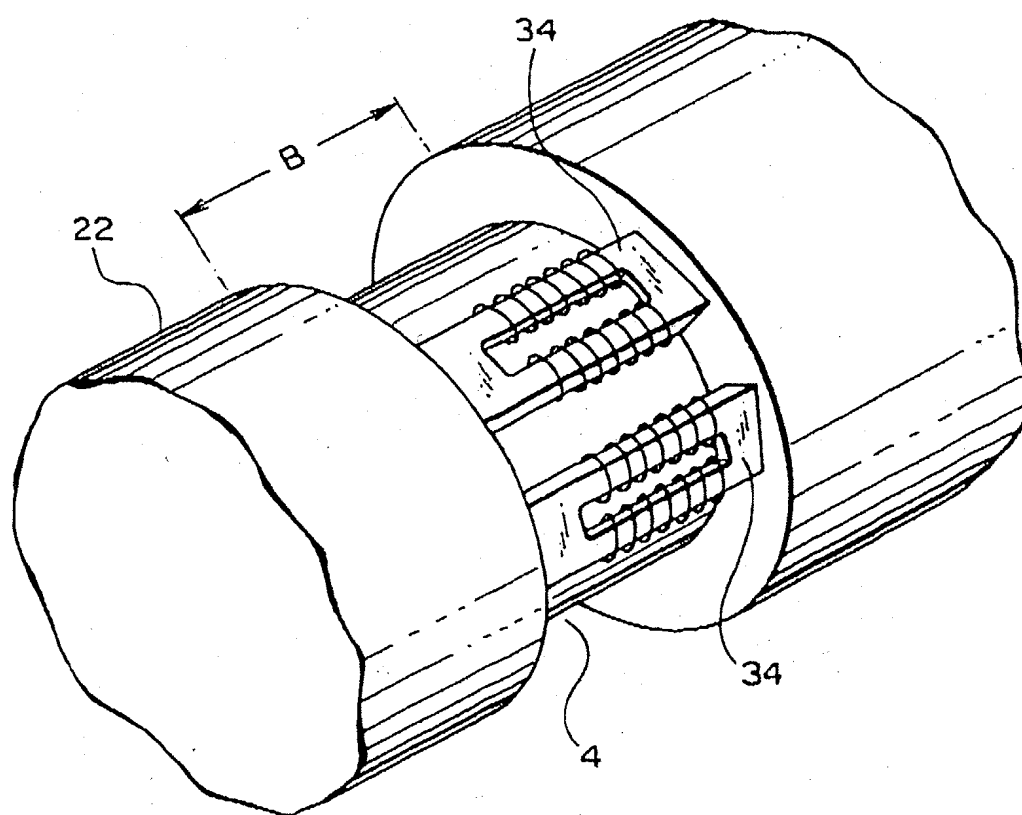


FIG. 16



002201 8296960

FIG. 17

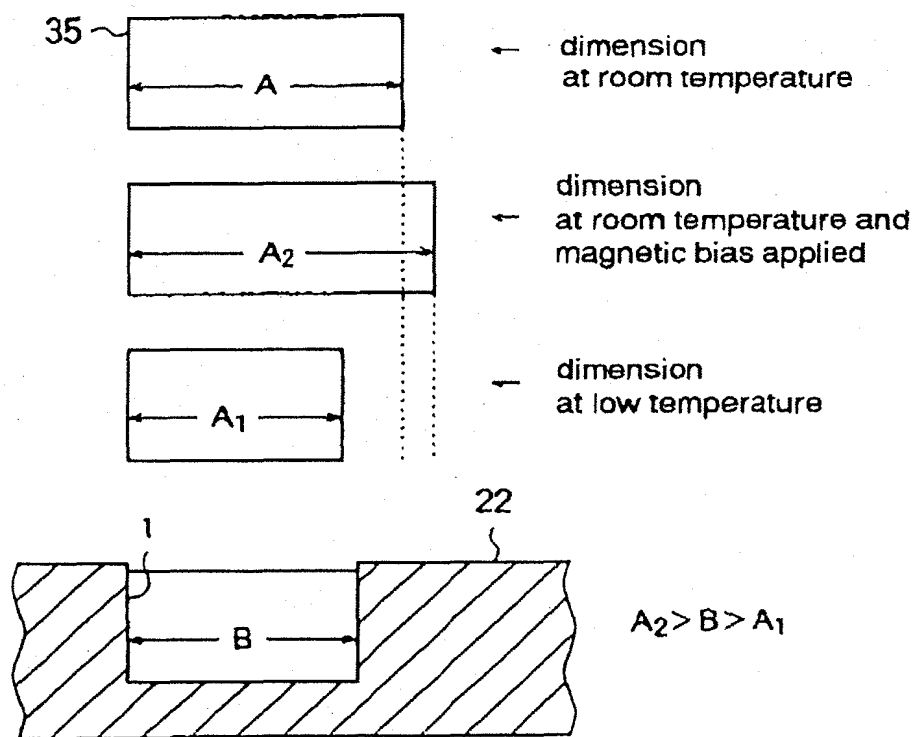


FIG. 18

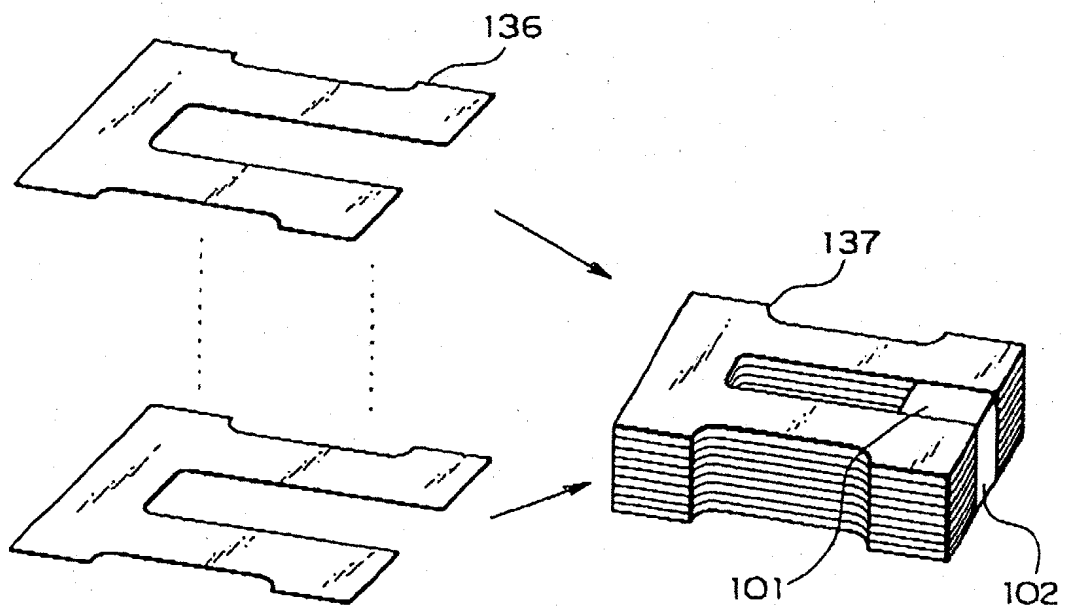
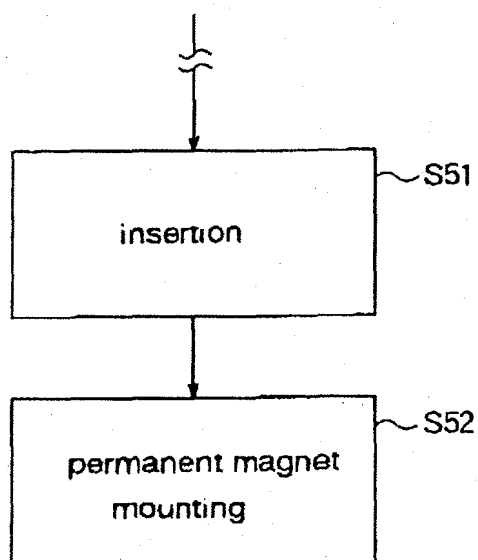


FIG. 19



09697678.102700

FIG. 20

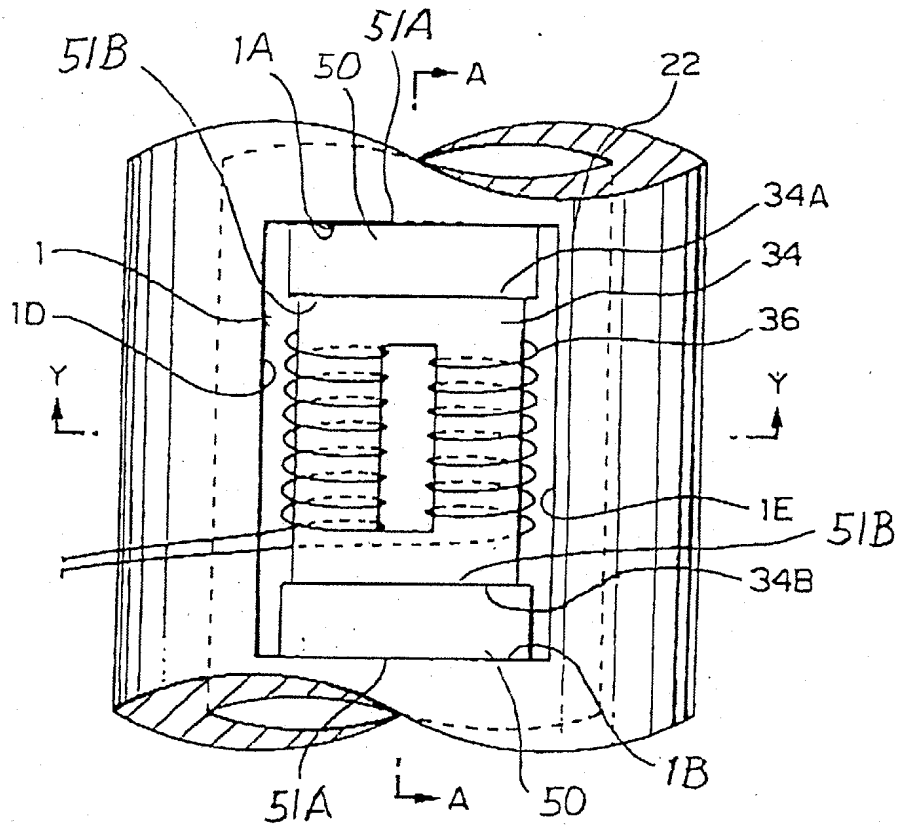


FIG. 21

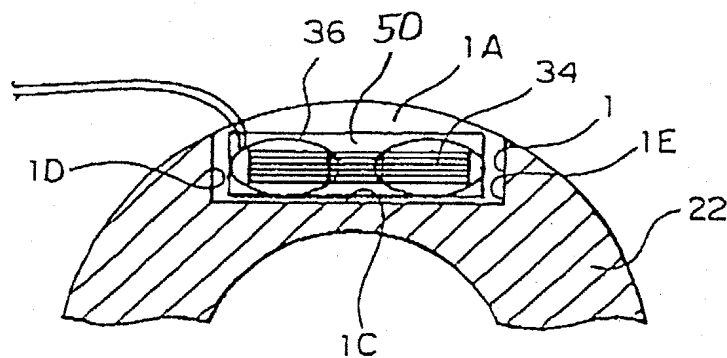


FIG. 22

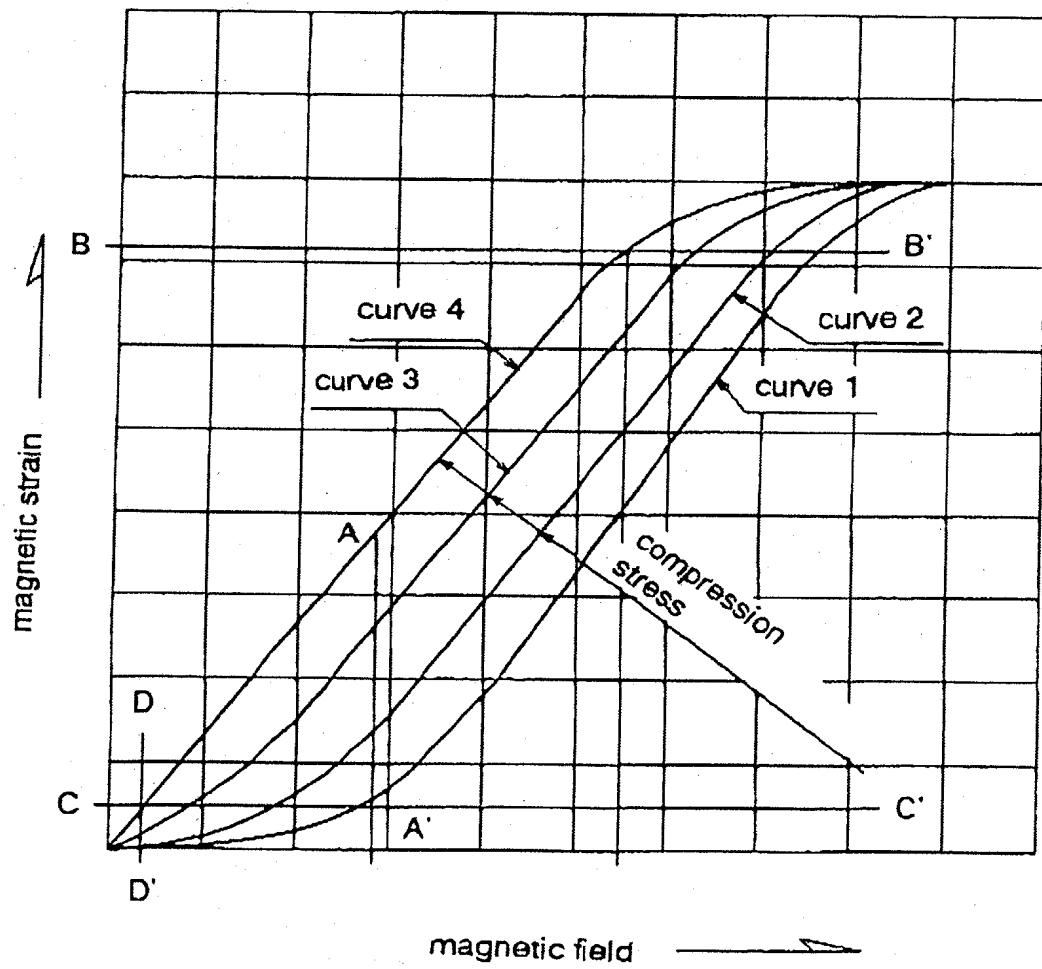
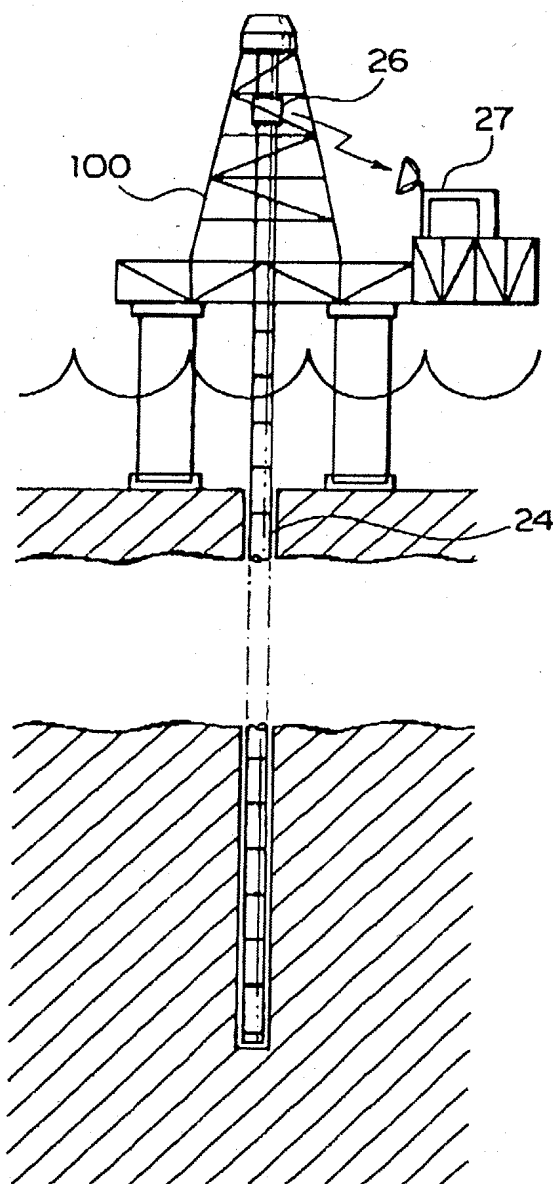
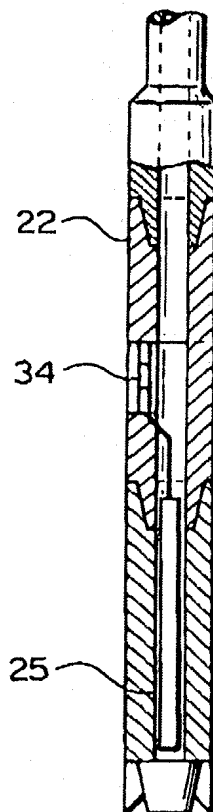


FIG. 23 PRIOR ART



09597678.102700

FIG. 24
PRIOR ART



09697678.102700

FIG. 25a
PRIOR ART

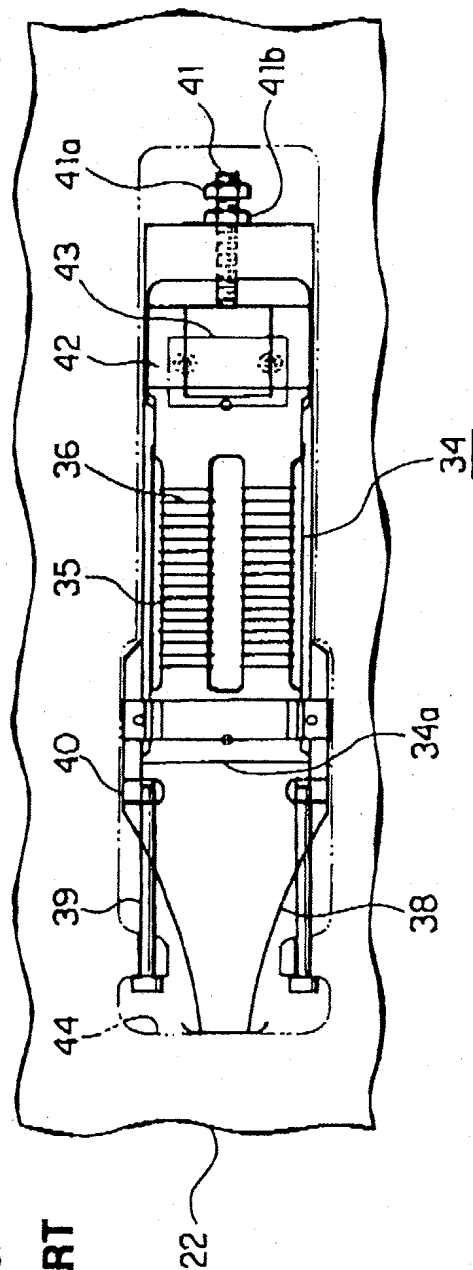


FIG. 25b
PRIOR ART

